VB-99 V-Bass System

Introduction to the VB-99

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VB99WS01

About the Workshop Booklets

Roland's VB-99 V-Bass System is, simply put, the most powerful bass processor ever made. It's the second-generation V-Bass system from Roland, and it offers an unprecedented set of creative sound-making tools for the bassist. Featuring dual COSM bass and amp modeling paths, two independent multi-effects processors, massive realtime control options, pitch-to-MIDI conversion, and USB, the VB-99 is a bassist's dream machine, capable of producing sounds that are limited only by your imagination.

Each VB-99 Workshop booklet focuses on one VB-99 topic, and is intended as a companion to the *VB-99 Owner's Manual*.

About This Booklet

This booklet introduces you to the VB-99. We'll give you an overview of what it is and what it does, and discuss its concept and application. We'll also talk about some of the technologies that are part of the VB-99.

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Understanding the Symbols in This Booklet

Throughout this booklet, you'll come across information that deserves special attention—that's the reason it's labeled with one of the following symbols.

A note is something that adds information about the topic at hand.

A tip offers suggestions for using the feature being discussed.

Inside the V-Bass System

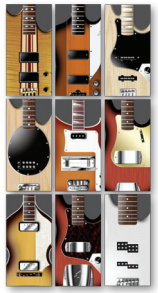
The "V" in V-Bass stands for "virtual." In computer terms, virtual means to use software to create something that doesn't physically exist, or to recreate something that exists in the real world in the digital realm. The VB-99 is essentially a computer, one that's dedicated to processing bass sounds. Its software uses Roland's proprietary digital technology called "Composite Object Sound Modeling"—or "COSM" for short—to process your bass and turn it into a different bass or another instrument, one that's created *virtually*, entirely within the VB-99.

In addition to instrument modeling, the VB-99 uses COSM to create a multitude of different virtual bass amplifiers and speakers, from vintage to modern. To add the icing on the cake, the VB-99 provides a staggering selection of effects to process your sound just the way you like it, including COSM models of classic stompbox and rack effects. You can store all your sounds in 200 custom patches for later recall, and control sounds and patches in real time in a number of ways.

Using USB, you can connect the VB-99 to your computer, where you can transfer audio and MIDI back and forth, and even edit and store patches using the VB-99 Editor software. With the Bass to MIDI function, you can use your bass to trigger external MIDI instruments such as a hardware synthesizer or a virtual instrument in a computer.

The VB-99's versatile and convenient form factor makes it easy to integrate into a number of different environments. It works great as a table-top device in a recording studio, or it can be mounted in a rack with the optional RAD-99 rackmount adaptor. If desired, you can mount it on a stand for quick access in a performance. An integrated foot controller—the FC-300 (shown in the image to the left)—is available as well, which provides comprehensive foot control for switching patches and controlling an enormous variety of VB-99 functions.

COSM Instrument Modeling

With the VB-99's COSM instrument modeling, you can turn your bass into a completely different instrument. That instrument could be:

- *an electric bass*—Inside the VB-99 are ten electric bass models, including vintage and modern Fender basses, a Gibson Thunderbird, a Hofner "Beatle bass," a Rickenbacker 4001, a Music Man StingRay, and more. Each electric bass model has pickups that sound just like the original articles, and you can shape the tonality of the instruments to taste with a powerful EQ. There's even a "Vari" bass model that allows you to construct your own custom virtual electric bass inside the VB-99.
- *an electric guitar*—Have you ever wanted to play some lead guitar on your bass? Now you can. The VB-99 features two different classic electric guitar models, the Fender Stratocaster and Gibson Les Paul. (The VB-99 also provides COSM guitar amps and stompboxes for processing these models—and any other instrument model, for that matter.)

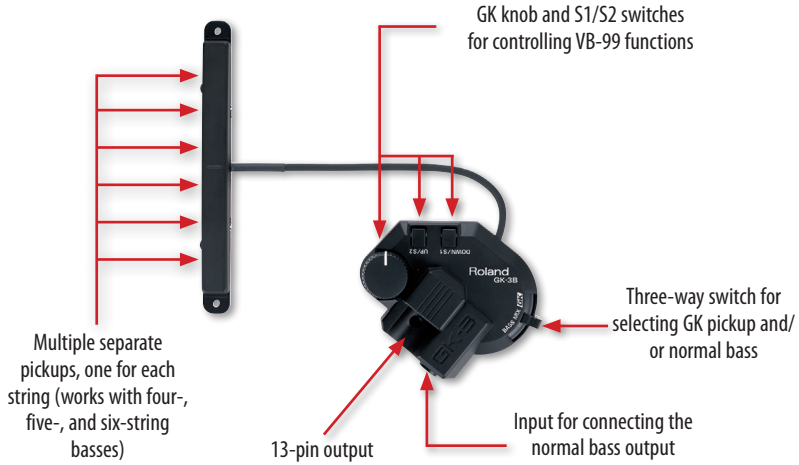
- *an acoustic bass*—The VB-99 features a comprehensive model of an upright acoustic bass. This variable instrument has numerous adjustable parameters that allow you to dial in the sound just the way you want, including body size, resonance, string buzz, and many more.

- *a synthesized instrument*—Utilizing digitally created waveforms, the VB-99 can transform your bass into something completely unique and un-bass like. Use the Pipe model to make your bass sound like a woodwind instrument, or the Organ model to impart, well, an organ-like quality. Among the many available synth voices is a spot-on model of the GR-300, Roland's classic analog polyphonic guitar synthesizer from the early 1980s.

For more information on COSM instruments, see the *VB-99 Owner's Manual*.

Unlocking Instrument Modeling with a Divided Pickup

The VB-99 creates its virtual instruments by processing each of the strings on your bass individually. This is accomplished by using a special pickup called a "divided" pickup, such as Roland's GK-3B. This type of pickup is actually *multiple separate pickups*, one for each string. As you play, the signal for each string—along with the output from the normal pickups in your bass, if desired—is sent through a special 13-pin cable to the VB-99. Additionally, the divided pickup's control section provides a knob and two switches that allow you to control various VB-99 functions remotely from your instrument, and a three-way switch for choosing the divided pickup, the normal pickups, or both.


GK knob and S1/S2 switches for controlling VB-99 functions
Roland
GK-3B
Three-way switch for selecting GK pickup and/or normal bass
Multiple separate pickups, one for each string (works with four-, five-, and six-string basses)
13-pin output
Input for connecting the normal bass output

Anatomy of the GK-3B Divided Bass Pickup

The normal pickups in a bass sense the sum total of the instrument's strings, creating a single monophonic output. For this reason, they can't be used to drive the VB-99's COSM instrument modeling section.

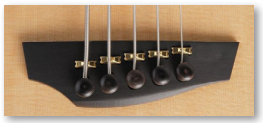
Divided pickups are also sometimes called "hex," "hexaphonic," or "polyphonic" pickups.

Installing a Divided Pickup

The Roland GK-3B provides an easy way to add divided pickup capabilities to your favorite bass. It works with four-, five-, and six-string basses, and can be easily attached to most instruments with no modifications. It can also be attached to many flat-top acoustic basses as well. (Roland's previous generation divided pickup—the GK-2B—can be used with the VB-99, too.) Roland also offers the GK-KIT-BG, a kit version of the GK-3B that can be permanently installed inside your instrument (professional installation is required).

Bass with a Roland GK-3B Divided Pickup installed

Another option is to purchase and install a piezo-type divided pickup system. These systems incorporate pressure-sensitive piezo elements in bridge saddles that replace the original saddles on your bass. The output from the individual saddles is then fed to a preamp with a 13-pin output. A piezo divided pickup system is necessary in applications where the GK-3B can't be used, such as with any instrument that has an unusually wide or narrow string spacing. A piezo system can also be installed on a standard electric bass as an alternative to the GK-3B. Pickup manufacturers such as RMC and Graph Tech Guitar Labs offer piezo divided pickups. In most cases, professional installation is required.



RMC piezo pickups on a Godin flat-top acoustic bass

If you wish to purchase an instrument with a divided pickup built in, bass manufacturers such as Brian Moore, Godin, and more offer "Roland-ready" or "synth access" basses. These instrumentsare factory-equipped with divided pickups and 13-pin outputs that can be plugged directly into the VB-99 or any previous V-Bass System, as well as most Roland guitar synthesizers and guitar/bass-to-MIDI converters.

13-pin jack on a Brian Moore instrument

Alternate Tunings, Pitch Shifting, and Polyphonic Effects

Once the VB-99 has the strings' signals, it converts them to digital information so they can be processed individually with its digital brain. Besides transforming your bass into any of the instruments described earlier, applying processing to each string individually allows for some incredible realtime options, such as the following.

- *Instant alternate tunings*—Along with many other settings, you can store instrument tunings in patches, and call them up at the turn of a dial or touch of a button.
- *Pitch-bend effects*—You can change the pitch of an individual string or a combination of strings using one of the VB-99's controllers. This allows you to create pedal steel and "B-bender" type effects on the bass.
- *Dual-string emulation*—COSM lets you turn your bass into an instrument with dual-string courses (like a 12-string guitar or a mandocello), with both fine and course pitch control of the secondary strings.
- *Harmony*—Play instant harmonies based upon a key and scale that you determine.
- *Polyphonic effects*—or "Poly FX" allow you to apply powerful effects processing to each string individually. Available Poly FX include compression, limiting, fretless emulation, distortion, octave, ring modulator, Slow Gear, and string modeling.

So, Is It a Bass Synthesizer?

Because it alters the entire bass sound, has synth-type voices on board, and interfaces with a divided pickup, the COSM instrument modeling in a V-Bass system is often mistaken for a synthesizer. It's not, however; COSM actually does all its modeling magic in real time using super-fast digital signal processing (DSP) chips to alter the bass sound as you play. In this way, it's more akin to using a multi-effects processor—well, actually *multiple* super-powerful multi-effects processors, all running at once.

Like the VB-99, a guitar/bass synthesizer—such as Roland's GR-20—utilizes string information from a divided pickup. However, it processes that information in a much different way. When a string is played and sensed by the divided pickup, the guitar/bass synth determines the pitch of the string,

and then it converts that pitch into digital information that *triggers* a sound engine, either internally in the synth or externally via MIDI. As such, the bass is only used as an input device—like the keys on a keyboard synth—to play sounds you call up on a menu, such as piano, strings, drums, and so forth.

With the VB-99, the string signals from your bass are always the fundamental building blocks of the sound you hear, even when the realtime modeling process modifies that sound into something quite unlike a bass. As a result, playing a COSM instrument always feels and responds just as naturally as playing your normal bass, with every subtle expressive nuance coming through.

Bass to MIDI

While COSM instrument modeling itself isn't a synthesizer, the VB-99 *does* have the ability to use the divided pickup signal to trigger sounds in an external synthesizer or sound module via MIDI. This is called the "Bass to MIDI" function, and it's basically like having a Roland GI-20 GK-MIDI Interface built in.

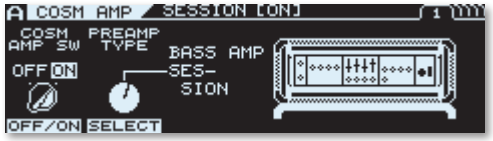
Connecting a Normal Bass Without a Divided Pickup

If you like the sound of your normal pickups as is—or you don't want to install a divided pickup—you can still use your bass with the VB-99. Just plug its output into the VB-99's rear-panel 1/4-inch BASS INPUT jack. You won't be able to use COSM instrument modeling (including its alternate tunings and polyphonic effects) or the Bass to MIDI function; those require a divided pickup. But you can use all the rest of the VB-99's processing options, including COSM amps and effects.

As mentioned earlier, the Roland GK-3B and other divided pickup systems allow you to send the normal pickup output along with the divided pickup output over the 13-pin cable connection. The GK-3B control unit has an onboard switch to allow you to easily switch between regular bass, divided pickup output, or both, and the VB-99 has internal mixing options to blend the sounds as well. Another quick way to bring your normal pickups into the signal chain is with the front-panel BASS DIRECT switch.

COSM Amps to the Max

Once you've created a COSM instrument—or plugged your regular bass into the BASS INPUT—you can "amplify" it virtually using a COSM amplifier model. The VB-99 offers 12 COSM bass and guitar amps, from vintage legends to modern classics. Each amp model offers uncannily accurate sound replication, as well as a set of familiar controls (volume, bass, treble, bright switch, etc.) as found on the real amp. The amp's speaker system—a critical component of any bass or guitar amp's sound—is modeled as well, with a selection of five different virtual mics and variable mic positioning. You can mix and match speaker types at will, or turn the speaker models off altogether if desired.



For a detailed listing of the COSM amps and speakers, see the *VB-99 Owner's Manual*.

Effects, Effects, and More Effects

The VB-99 provides multi-effects to the gills—everything you need to sweeten, tweak, twist, and/or mangle your tone. The list of included effects reads like a history of Roland and BOSS signal processing, all under one hood. In addition, there are many COSM models of classic stomp boxes and effects units from other manufacturers.

The effects are organized into different groups, and all groups are available simultaneously. One effect within each group can be selected at any one time. The effects groups are described as follows.

- *COMP*—Provides compression and limiting effects, from stompbox emulations to models of vintage studio rackmount units.
- *OD/DS*—12 different overdrive and distortion effects are provided here, including models of legendary pedals from BOSS and others.
- *EQ*—Shape your sound with a powerful four-band parametric equalizer.
- *DELAY*—Multiple mono and stereo delay effects are provided here, as well as reverse delay, and models of tape and analog units. You can also do sound-on-sound recording with the HOLD effect.
- *CHORUS*—Add depth and richness with mono and stereo chorus effects.
- *MOD 1 and 2*—These two groups feature 27 effects types, including pedal wah, touch wah, phaser, flanger, tremolo, slicer, pitch shift, octave, etc. Any one effect type can be selected for each group: MOD 1 and MOD 2.
- *NS*—This effect is a noise suppressor to reduce hum and noise.
- *FV*—Foot volume, controlled via an optional expression pedal, the FC-300 Foot Controller, or MIDI.

For a detailed listing of the effects and effects parameters, see the *VB-99 Owner's Manual*.

The Effects Chain

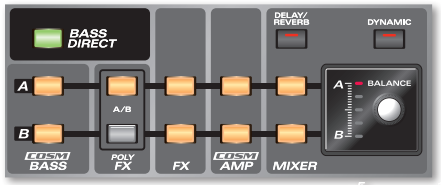
The order of the VB-99's effects can be changed at will. The COSM bass and normal pickup paths can be adjusted as well, allowing you to apply separate processing to them if desired. For example, this is particularly useful for applying traditional bass effects and COSM amp simulation to one set of pickups, and not the other. Effects placed after the pickups will be applied to both signals.

Processing Times Two: Dual Signal Paths

Okay, now that we've detailed what the VB-99 offers in the way of sound processing, let's double it. That's right—the VB-99 provides two separate and independent signal paths, A and B. And every processing option we've described so far—COSM bass, COSM amps, and multi-effects—can be set up and used independently on both the A and B paths. That's an amazing amount of signal processing power!

The VB-99's POLY FX can only be applied to one signal path at a time, A or B.

With the two signal paths layered together, it's like playing two instruments at once, with separate amplification and effects to boot. Imagine playing a super-clean electric bass and an upright together...or a rock bass/amp combo layered with a raging electric guitar/stack/fuzz box. And, of course, you can always blend in your bass' normal pickup sound as well, giving you a third tonal option. The sound-shaping possibilities are nearly endless!



Dedicated front-panel buttons controls allow you to easily select, edit, and balance the A and B signal paths

Mixing It Up

To combine the A and B paths, there's an onboard mixer. As you'd suspect, you can adjust levels and panning for each path as you like. But there's also a four-band EQ (separate from the effects section) that allows you to shape the overall tone of both paths, along with an additional delay effect and a reverb effect to add some final sweetening to your sound. The mixer also lets you route the A and B signal paths to any (or all) of the VB-99's multiple outputs.

One of the VB-99's mixer screens

Dynamic Control: Adjusting the Mix Balance with Your Playing Dynamics

The Dynamic feature allows you to control the A and B signal paths with your picking dynamics. By adjusting how hard or soft you play, you can blend A with B (or vice versa), or switch between the two paths. This can be used for many expressive effects, from subtle to extreme.

Patch Me In

The VB-99 provides a total of 400 patches. 200 patches contain preset sounds that demonstrate various VB-99 features, while 200 user patches offer locations to store your own custom settings for later recall. Furthermore, patch categories allow you to organize patches by music style or 10 user-defined categories.

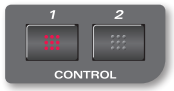
Patches can be selected with the PATCH/VALUE dial, the FC-300 (discussed in a bit), or via program change commands sent from an external MIDI device. You can also assign five of your most-used patches to the front-panel DIRECT PATCH buttons for quick access.

Revolutionary Realtime Control

The VB-99 gives you a multitude of ways to control its sounds and effects in real time during performances. Up to 18 different parameters per patch can be assigned to various onboard buttons and controllers, as well as optional external footswitches and pedals. Nearly any VB-99 parameter can be controlled—for example, the pickup selection on a COSM bass, the gain of a COSM amp, the rate or depth of an effect, etc. In many cases, multiple parameters can be assigned to a single button or controller, so you can make multiple adjustments with a single action.

CONTROL Buttons

Parameters can be assigned to the VB-99's two CONTROL buttons. This gives you handy access from the front panel.



F Knobs

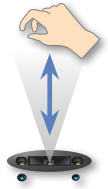
Under the display are six F knobs. The "F" stands for "function," and they're normally used to adjust parameters on the VB-99's various editing screens. However, when the home screen is displayed, they can be assigned to control any six VB-99 functions of your choice—and these assignments can be saved on a system-wide basis or per patch.

D Beam and Ribbon Controller

The VB-99 offers two realtime controllers usually only seen on keyboards and grooveboxes: a D Beam and a ribbon controller. These two controllers give you exciting realtime control possibilities not normally associated with bass performance.

D Beam

The D Beam is an invisible infrared light beam that emanates from the VB-99's D Beam controller. When you pass your hand over the D Beam, the assigned parameter or parameters are adjusted.



Ribbon Controller

The ribbon control is a touch-sensitive strip on the right side of the VB-99 panel. When you run your finger along the strip, the assigned parameter or parameters are adjusted.

CTL 3,4 and EXP PEDAL Jacks

You can connect optional footswitches to the CTL 3,4 jack (two FS-5Us or one FS-6) and an optional expression pedal to the EXP PEDAL jack (EV-5, FV-300L, etc.).

GK Knob and S1/S2 Switches

As we mentioned earlier, the GK knob and S1 and S2 switches on the GK-3B control unit or a Roland-ready bass can be used to remotely control various VB-99 functions.

A Perfect Companion: The FC-300

The FC-300 MIDI Foot Controller offers the ultimate control for the VB-99. With five patch selection switches, two bank switches, two control switches, and two expression pedals, it's the perfect integrated foot controller for the VB-99. There's even an onboard display that shows VB-99 patch info. And when the VB-99's tuner is activated, the FC-300 display switches to a tuner screen.

If the onboard pedals aren't enough, the FC-300 has rear-panel jacks for connecting up to six optional footswitches or up to three optional expression pedals for additional realtime control. (Various combinations of both switches and pedals can also be configured).

It's simple to connect the FC-300 to the VB-99: just use a single CAT 5 Ethernet cable—the type of cable used for networking computers—to connect the RRC2 jacks on each unit. The CAT 5 cable provides two-way communication with the VB-99, and allows the VB-99 to provide remote power to the FC-300, so there's no fussing with an AC adaptor or batteries.

The FC-300 can also function as a full-featured MIDI controller, providing Program Change, Control Change, note, and System Exclusive control for any MIDI device.

MIDI

Nearly any assignable VB-99 parameter can be controlled via MIDI commands sent from an external device, such as a MIDI sequencer, keyboard, or another VB-99. Additionally, you can send numerous MIDI commands to the MIDI OUT jack from the VB-99's various controllers and the FC-300.

Audio Outputs

The VB-99's rear panel provides multiple output jacks to connect to any desired destination. The MAIN OUT jacks utilize 1/4-inch jacks, while the SUB OUTS provide a balanced output on XLR connectors. There's also a S/P DIF DIGITAL OUT, as well a PHONES jack for connecting headphones. Audio signals in the VB-99 can be freely assigned to any combination of MAIN, SUB, and DIGITAL outputs via the mixer, either globally or per patch.

When you've plugged a bass' normal output into the VB-99, its unprocessed signal is available at the BASS OUTPUT jack.

USB

The VB-99 features a USB jack that you can connect to a personal computer for data exchange.

Connecting the VB-99 to a computer requires installation of the VB-99 USB Driver on the computer. For the latest version of the USB driver, check the VB-99 downloads page at *www.RolandUS.com*.

The VB-99 Editor and Librarian

The VB-99 Editor software allows you to edit, save, and load VB-99 patches using an intuitive full-color graphic display. The VB-99 Librarian provides a way to organize patches in groups. The Editor and Librarian can be downloaded at *www.RolandUS.com*.

The VB-99 Editor's main screen

Audio/MIDI Interface Functionality

With the VB-99 USB Driver installed on a compatible Windows or Mac computer, you can use the VB-99 as a USB audio and MIDI interface. This allows you to record and playback audio through the VB-99 with digital audio workstation (DAW) software, and transfer MIDI information with MIDI-capable software, such as a MIDI sequencer. If you have a divided pickup installed on your bass, you can use the Bass to MIDI function to play software-based virtual instruments.

The VB-99's flexible USB routing allows you to record the VB-99's total sound, or record a dry, unprocessed signal to DAW software while monitoring the sound with COSM amps and effects during recording. When it's time to mix, you can play the dry audio back through the VB-99's COSM amps and effects, and then re-record the result on another track. This is a process known as "reamping," and it gives you the ability to adjust bass sounds to match your needs at mixdown, rather than having to commit to them ahead of time.

Wow.

No doubt about it, the VB-99 is a bass processing powerhouse. With its amazing COSM sound-shaping ability, powerful multi-effects processing, realtime control options, and USB connectivity, this is a digital bass tone machine like no other.

They say that less is more, and that's often true. But the processing power in the VB-99 is so massive that we can't resist offering a hypothetical combination of things that can be done in a single patch:

- *Two different COSM instruments, each with altered tuning, detune, and pedal bend (blended with the normal bass sound if desired)*
- *Three different overdrive/distortion effects*
- *Two different COSM amp/speaker rigs*
- *Nine (!) different four-band parametric EQs*
- *Three different delays (or five if you don't mind giving up two EQs)*
- *Two different compressor effects*
- *Two different chorus effects*
- *Reverb*
- *Bass to MIDI conversion*
- *USB audio/midi interfacing with a computer*

Whew! If you can settle for only *seven* four-band EQs and *three* delays in this hypothetical patch—we suspect that's probably enough—you can add in a bunch more effects options, too, such as wah, flanger, phaser, etc.

Of course, this isn't the only possible combination of effects; there are many different iterations to be had. You may hardly ever need to use all this power at once—but it's good to know it's there when you want to kick it up a notch with some out-of-this-world sounds!

The End

We hope you've found this workshop helpful. Keep an eye out for other VB-99 Workshop booklets available for downloading at *www.RolandUS.com*.